REMARKS

Claims 2-7, 9, 11-15, 17-23, 25-35 and 37-51 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Luciani et al., EP 0480435 (hereinafter Luciani I). Claims 2-7, 9, 11-15, 17-23, 25-35 and 37-51 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Luciani et al., EP 0522651 (hereinafter Luciani II). Claims 2-7, 9, 11-15, 17-23, 25-35 and 37-51 are rejected by the Examiner under 35 USC 103(a) as being unpatentable over WO 91108239 (hereinafter Neste). These rejections are respectfully traversed.

The present invention is directed to a process for producing a solid catalyst component used in the polymerization or copolymerization of ethylene as well as a solid catalyst component per se and a process for the polymerization or copolymerization of polyethylene using such a solid catalyst.

Although previously argued in the Applicants' response to the previous Office Action letter, the Applicants believe that the composition of the catalyst of the present invention which contains Ti, Mg, Cl, alkoxy groups and organometallic compounds and the use of non-polar organic solids to impregnate the particular silica defines a catalyst system having a different behavior which, in turn produces a different final product in the ethylene polymerization and copolymerization process. That is, because the present process utilizes a specific amount of titanium, a specific amount of magnesium and a specific amount of chlorine which remains fixed on the solid catalyst component, as recited in claim 48, subparagraph (d) and subparagraph (f) of the present application, and because of the use of inert organic solvents, more specifically aliphatic hydrocarbons, in all process steps of the present invention, it is possible to produce particles of homo and copolymers of ethylene with controlled morphology having high bulk density and containing a very small quantity of fines. This feature allows the use of the present catalyst in a process where the catalyst can be fed directly into the polymerization reactor. The catalyst system of the present invention is also effective in achieving good co-monomer insertion into the final product as well as an improved catalyst activity with a low catalytic decay.

Because none of the references relied upon by Examiner, either alone or in combination, show the specific relationship between the amount of magnesium per gram of silica, the amount of titanium per gram of silica and the amount of chlorine-containing agent per mole of titanium, it is understandable that the prior art references are unable to achieve the advantageous results of the present invention as referred to hereinabove. Thus, when comparing Examples 11 and 12 of the present application with Example 1 of Luciani I, it can be seen that Examples 11 and 12 exhibit an improvement in bulk density and example 12 exhibits an improvement also in a reduction in the amount of fines, a significant improvement in catalyst activity and a significant improvement in co-monomer insertion. When comparing Example 11 of the present application with Examples 1 and 4 of Luciani II, that is, comparing Comparative Tests No. 7 with Comparative Test Nos. 5 and 6, as presented on page 30 of the Applicants' previous response, it can be seen that Example 11 shows an improvement in bulk density and a substantial reduction in the quantity of fines.

In referring to Comparative Test Nos. 8, 9, 10 and 11 presented on page 31 of the Applicants' previous response it can be seen that in comparing Example 12 of the present application to Examples 1 and 4 of Luciani II, an improvement in bulk density and a substantial reduction in fines, in most cases, can be found, as well as a general improvement in the content of binded butene. Also, in all cases, the activity of the catalyst system is improved with a dramatic improvement noted when Example 12 of the present application is compared to Example 1 of Luciani II.

On pages 32 and 33 of the Applicants' previous response, a direct comparison has been made between Luciani II, Neste and the present application concerning the amounts of titanium, magnesium and chlorine which are present in the respective catalyst systems. The percentage differences between the respective catalytic systems is clearly notable and thus it can be understood why the Applicants are focusing the patentable distinction of the claims of the present application on the composition of the catalyst system. It is believed that the Applicants have demonstrated a catalyst system which is unique in its nature because of the process by

which it is produced and, as such, is effective in producing polymers and copolymers of polyethylene with narrow molecular weight distributions of high density polyethylene and linear low-density polyethylene which possess the morphology which is effective in achieving the advantageous results of the present invention. The present invention contains many features which are effective in producing the Applicants' inventive contribution and as previously pointed out, the prior art relied upon by the Examiner fails to show many of these features recited in the claims of the present application.

Accordingly, in view of the above remarks reconsideration of the rejections and allowance of all of the claims of the present application are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joseph A. Kolasch Reg. No. 22,463 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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